BOARD OF PUBLIC WORKS

Vision

The Board of Public Works exists to improve the quality of life of the customers we serve.

Mission

We are dedicated to providing our current and future customers with utility and other value added services in a safe, reliable, and economical manner consistent with sustainable growth, community involvement, and environmental stewardship.

Regular Meeting of the Board of Public Works was held in Lewes City Hall, Council Chambers, 114 East Third Street, Lewes, Delaware on Wednesday, January 26, 2011 at 7:00 p.m.

Board Members Present:
C. Wendell Alfred
James (Jay) Carmean
James Gayhardt
James N. Richmann
Gary W. Stabley

Ex-Officio Members Present:
Paul Eckrich, City of Lewes Manager
Barbara Vaughan – City of Lewes Council

Members Absent:
James L. Ford III, Lewes Mayor
Glenn C. Mandalas, Legal Council

Others Present:
Kenneth D. Mecham, General Manager
Darrin Gordon, Assistant General Manager
Carl and Doris Schirmer – BPW
Henry Evans, Cape Gazette
Charles M. O'Donnell, GMB
Kathryn McAllister, GMB
Amanda Pollack, GMB
Tim Crowley - Resident
Joe Hoechner – Resident

1. **Welcome, Call Meeting to Order and Pledge of Allegiance**
   At 7:00 p.m., President Stabley welcomed everyone, called meeting to order and led Pledge of Allegiance.

2. **Roll Call**
   President Stabley stated all Board Members and General Manager Mecham are present; Mayor Ford and Legal Counsel Mandalas [weather conditions] are absent.

3. **Revisions and/or deletions to the Agenda.**
   INFORMATION:
   No revisions or deletions requested.

4. **Secretary Report**
   a) Approval of minutes dated December 1, 2010.
      Mr. Alfred motioned to approve December 1, 2010 minutes, Mr. Richmann seconded, and motion carried.
   b) Correspondence
      Mr. Alfred has a statement for the press concerning Elections for Board with residency requirements.

5. **Receive the Treasurer's Report**
   Mr. Richmann reviewed Treasurer's Report with Mr. Mecham and asked Mr. Mecham to present report. Mr. Mecham requested approval of Treasurer's Report as presented.
   Mr. Richmann motioned his approval of Treasurer's Reports covering two months; Mr. Alfred seconded; and motion carried. President Stabley asked for any questions; no questions. All Board Members agreed to accept Treasurer's Report subject to audit.

6. **Reports**
   a) Receive the General Manager's Monthly Report.
      1) Report on selection of consultants for the BPW Strategic Study:
         Firm selected to do BPW Strategic Economic Study is J. W. Wilson and Associates, Arlington, VA. and they will proceed immediately to work on study.

Mr. Mecham stated he would answer any questions; no questions.
Mr. Alfred motioned to accept General Manager's Monthly Report, Mr. Richmann seconded, and motion carried. President Stabley asked for any questions; no questions. All Board Members agreed to accept.

b) Receive Severn Trent's Report for November and December.
Mr. Alfred motioned to accept Severn Trent's November and December Reports, Mr. Carmean seconded, and motion carried. President Stabley asked for questions; no questions. All Board Members agreed to accept.

c) Receive Principals Reports
No reports received.

OLD BUSINESS
NONE

NEW BUSINESS

7. It is recommended that the Board of Public Works set a public workshop on the 2011/2012 budget for 2:00 pm, February 16, 2011 in the City Hall Council Chambers. (Staff)

INFORMATION/ACTION:
Mr. Richmann motioned to set public workshop on 2011/2012 budget for 2:00 p.m. on February 16, 2011 in the City Hall Council Chambers; Mr. Alfred seconded, and motion carried. President Stabley asked for questions; no questions. All Board Members agreed to accept.

8. It is recommended that the Board of Public Works approve RESOLUTION 10-001, A RESOLUTION OF THE BOARD OF PUBLIC WORKS OF THE CITY OF LEWES ESTABLISHING AN INVESTMENT POLICY FOR BOARD OF PUBLIC WORKS' FUNDS, SUPPLEMENTING, SUPERSEEDING AND AMENDING SUCH POLICIES ADOPTED BY THE BOARD OF PUBLIC WORKS PRIOR TO JANUARY 26, 2011. (Richmann)

INFORMATION:
Mr. Richmann asked if there are any questions or comments on resolution as presented. Mr. Gayhardt confirmed this recommendation reflects Board's discussions and wants. Mr. Richmann said he has reviewed policy and comments made by investment advisor. Resolution and comments were also reviewed with Mr. Mecham; Mr. Richmann is satisfied resolution for investment policy is correct as amended.

ACTION:
Mr. Richmann motioned to accept Resolution 10-001, Mr. Gayhardt seconded, and motion carried. President Stabley asked for questions; no questions. All Board Members agreed to accept.

9. It is recommended that the Board of Public Works enter into a Design/Build contract with Lifetime Living LLC for the electric distribution system for the Canary Creek subdivision. (Carmean)

INFORMATION:
Mr. Carmean said schematic layout of development was prepared by BPW Electric Department [Mr. Schirmer], subsequently reviewed by BPW electrical consultant Booth Associates and Mr. Mecham. Project will be done in phases and will not be done in it's entirely at one time. BPW will do work and schedule still needs to be developed. Presentation is not signed yet as it is a proposal for permission to go forward.

ACTION:
Mr. Carmean motioned to accept proposal, Mr. Richmann seconded, and motion carried. President Stabley asked for questions; no questions. All Board Members agreed to accept.

10. Open forum/general discussion to receive the Lewes Water System Study as prepared by George, Miles and BUHR LLC (Gayhardt)

INFORMATION:
Mr. Gayhardt said this is conclusion of contract entered into with GMB to do a complete study of BPW's present water system; requested Charles O'Donnell, GMB, to present proposed Lewes Water System Study.

Charles O'Donnell [Senior VP and Project Director, GMB]:
- Project was started last year and is 50% grant funded through State of Delaware Office of Drinking Water.
- Amanda Pollack is Project Manager and Kathryn McAllister is Project Engineer. Both know the technical details. Kathryn did all the modeling and knows BPW water system model inside and out.
- CPCN area reflects BPW franchise service rights for sewer service area. Will show existing service area and what has been developed as a future target service area.
- Model shown with different scenarios: existing conditions; short-term projects and expansions [Canary Creek and Savannah Place]; future expansions inside the CPCN [i.e. parcel of land between Burton Avenue and Pilottown Village that is developable; Zwaanendael Acres which has been extended into Savannah Place].
- Upgraded model to develop skeleton on how to serve future areas inside the CPCN and outside the CPCN into targeted area. Showfield is included.
- Looked at capacity of water supply and storage systems as compared to all above scenarios and questioned if there is

enough water supply and storage to serve the targeted CPCN area outside the existing CPCN.
- Water treatment system: Cost effectiveness concerning energy demand and O+M costs per year.
- Once model is developed and skeleton of system is developed to serve all areas, costs were applied similar to method used for sanitary sewer. If CPCN is expanded all the way out New Road, a water main would be needed.
- Impact areas were set up to be exactly same as in Sanitary Sewer Study a few years ago.
- Recommendations are made as a result of study.

Amanda Pollack [Project Manager, GMB]:
- CPCN [Certificate of Public Convenience and Necessity] area is regulated by Delaware Public Service Commission.
- In 2004, yellow area was defined as BPW's CPCN includes entire existing service area inside municipal limits and areas served outside municipal limits and a targeted future growth area.
- To obtain a CPCN, property owners need to be petitioned to get a majority in any area to opt into the CPCN.
- Purple area is a Tidewater CPCN.
- Bright green is where Tidewater has one pending.
- Blue outline areas scattered throughout [26 total] are parcels that opted out.
- Model is updated with recommended upgrades to existing system.
- Water model is updated with all projects that have occurred within the last few years.
- Existing flows are approximately 1.6 million gallons a day in the summer and .75 million gallons a day in the winter; model is calibrated accordingly.
- The fire hydrants are varying colors indicating the different flow ratings; blue is best flow of over 1500 gallons a minute and red showing a potential capacity deficiency being less than 500 gallons a minute.
- Model tries to identify pressure or flow deficiencies under two scenarios: a maximum hour scenario and a fire flow plus a maximum day scenario. Both are extreme scenarios especially the fire flow plus maximum day which would indicate any problems under extreme conditions.
- Under scenario of a fire flow event on a maximum day, twelve fire hydrants came up red indicating less than 500 gallons a minute flow. Of the twelve, seven are acceptable as there is another fire hydrant within 500 feet with a good rating; five hydrants need further review.
- Two hydrants on Monroe Avenue extended show less than 500 gallons a minute flow under the scenarios.
- All five hydrants are a low priority because problems will be solved through other future projects i.e. the loop from Gills Neck Road.
- On Johnson Avenue and Charles Avenue, there is a fire hydrant on a 4" main which could be upgraded to a 6" main.
- On Harborview Road, an 8" main connects out to a 6" main on Pilottown Road and would be solved with another loop in the system with Highland Acres.
- Last hydrant is on Brown and Bradley Lane. Board recently tested this hydrant in September 2010. When tested, hydrant was at 700 gallons a minute; this model is testing under extreme scenarios.
- Next level is for short-term projects and expansions. Two potential street rehabilitation projects on Bay Avenue and Madison Avenue and Railroad Avenue have 4" water mains which may be upgraded to 6" mains.
- Savannah Place project will include a 12" main running through the subdivision to create a loop for the future with a 6" main through the rest of the subdivision.
- Canary Creek has 8" mains.
- The short term projects do not create any new problems or deficiencies with existing infrastructure.
- All future projects assume the short-term projects have been completed.
- First level is potential future expansion within existing CPCN area with ability to serve without going back to PSC.
- Impact areas aligned with Sanitary Sewer Study; Sewer Impact Zone 1 is same as Water Impact Zone 1.
- There is no Impact Zone 6 [shown with a pinkish color in lower right-hand side] because there are future parcels able to be served by tying directly to existing lines in front and would fall under existing impact fee rates.
- Impact Area 2 is Zwaanendael and Donovan Blvd. Infrastructure service area would tie into 12" main going through Savannah Place; a new 12" main would be run down Savannah Road. Zwaanendael would have 6" mains throughout.
- Impact Area 3 is Highland Acres. To serve Highland Acres, subdivision needs a 6" main. But, to create a good loop through entire distribution system, a new 12" main up Sussex Drive through Highland Acres connecting to Pilottown Village is recommended which solves Harborview fire hydrant issue plus creates a better loop through system.
- For costs and impact fees, the 12" main is in Highland Acres impact fees in construction costs estimates.
- Impact Area 4 is two large undeveloped parcels off of 4th Street and can be connected with an 8" main coming off 4th Street and looping through. No cost for internal infrastructure is included because would be a developer's expense.
- Impact Area 5 is a very small area on Hoornkill Avenue with a very easy extension with a 6" main.
- Impact Area 7 includes Showfield area and would require a loop from Gills Neck Road to Monroe Avenue extended which would solve fire hydrant problems on Monroe. That loop is needed on that side of town. An 8" loop is made to connect to a 12" main on Gills Neck Road.
- Impact Area 8 includes two undeveloped parcels along Freeman Highway and would have an 8" main looping between Monroe Avenue and Gills Neck Road on the northwest side of properties.
- Both 7 and 8 projects combined would create two nice loops between Gills Neck Road and Monroe Avenue.
- No new problems occur with these projects to create a better distribution system within existing CPCN area.
- Last area, Impact Area 1, is a future expansion area outside existing CPCN area; is defined in Lewes Comprehensive Plan as a targeted area for potential development by the City; and was included in Sanitary Sewer Study as a target

area for BPW to provide sanitary sewer service. Area is largest and is centered on New Road. To serve, a 12" water main going down New Road with a 10" mains going off feeding it are needed.

- Area 1 does have impact on existing system and impacts fire hydrant at far end of Pilottown Road In cost estimates, a small upgrade on Pilottown is included to upgrade a 10" main in one area. A water tower may be needed also. Mr. Richmann confirmed diameter of pipe is required to keep water pressure up for fire hydrant at end of parcel.
- If BPW concurs with Comprehensive Plans, this should be pursued in short-term which involves going through process of petitioning land owners to obtain rights to that CPCN area contingent on legal opinions on Charter.
- Currently no one holds rights and nothing is pending with PSC. BPW tried to obtain a few years ago but not able to get a majority of property owners.
- If all impact areas are served and completely built out, future flows are 2.3 million gallons a day in summer [an increase of .7 mgd over existing] and an average flow of 1 million gallons a day in winter [an increase of .25 mgd over existing].
- Water Supply: Five existing raw water wells are in well field. Well capacity with largest well out of service is approximately 2800 gallons a minute. Typically look at well field capacity with largest well out of service for a factor of safety. Existing peak well demand is approximately 2,000 gallons a minute and future peak well demand is approximately 2,870 gallons a minute. Essentially well pumps meet your peak demands now; there is no immediate need for an additional well. Study looked at location for future well field in case of problems with current well field but five existing wells meet demands for future.
- Storage: One existing 300,000 gallon elevated storage tank. Well pumps are situated so aquifer provides storage based on fact the wells are able to pump peak demands so currently no added storage needs are recommended.
- Of five wells, only two largest wells have generator back-up so recommend other three wells have generators added in case of a power failure; mechanically, all wells would pump when there is a storage need.
- Impact Area 1 is a very large area remote from treatment plant and existing Schley Avenue water tower; when activated, another elevated water storage tower could be added to increase pressures there. Not recommended right now but BPW will need to review as City builds out in about 20 years.
- Current water storage is sufficient even with Area 1 development but would have better pressures if another added.

QUESTIONS:

Mr. Richmann: Need legal counsel. BPW is chartered under the State Code as attachment to City Charter. Charters are very explicit concerning description of service area and also say we have a monopoly for utility service within our service area. Comparing existing CPCN regional map with Lewes BPW, a few areas i.e. Cape Henlopen State Park are outside of our Charter area but there are also areas served by Tidewater or served by opt-outs within our chartered area. The Charter says nothing about the PSC. It even exempts the BPW's rate review process from the PSC. Question is how can these CPCN regional maps not align with service area where BPW has a monopoly as designated in the State Charter for BPW?
Amanda Pollack: There is a direct conflict between the Code that establishes the PSC's right to have CPCNs in your Charter because Tidewater has obtained a CPCN where Charter says you have monopoly to serve the parcels. Tidewater went through the State to obtain the CPCN.
President Stabley: Question should go the attorney in writing for interpretation.
Mr. Richmann: Reciprocal question is how do we service any area outside of where we are chartered?
President Stabley: Question for the attorney too. Give to Mr. Mecham to have attorney answer.
Mr. O'Donnell: It is not unusual for PSC not to review the rates of any municipal public water supply. Secondly, if Cape Henlopen State Park is not in any Charter, it would be fair for Tidewater to go through PSC process to obtain a CPCN.

Mr. Richmann: Page 21, Paragraph 5.2 says "It is the Columbia Aquifer that supplies water to BPW well field." Further on it states "Columbia Aquifer is an unconfined aquifer and is susceptible to certain areas of pollution such as run-off from fertilizers, pesticides, commercial and industrial wastes, road de-icing etc…" Report also talks about potential for risk for salt water intrusion into Columbia Aquifer. Is there a Delaware hydrogeologic reference that says definitively it is or is not the Columbia Aquifer? If it is the Columbia Aquifer, every issue is called into question involving irrigation wells, geothermal wells, salt-water intrusion, etc. According to University of Delaware professor, Columbia Aquifer is closest to top and feeds the others eventually. The quality and safety of BPW water is dependent on fact the wells go below the Columbia Aquifer.
Amanda Pollack: Delaware Geologic Survey Papers were used for this information; will get information for the Board.
Charles O'Donnell: BPW wells are unique as they are drilled down to an average of 150 feet which is deeper than Columbia Aquifer. There is an overlap between the Columbia and the Menoken which is actually an artesian confined layer.
Mr. Richmann asked to schedule an item on a future Board meeting agenda to discuss and invite the Engineers and possibly a University of Delaware Geology Professor. This is crucial because of pollution concerns and salt-water intrusion.
President Stabley agreed to schedule the discussion and asked Engineers to do appropriate research. Also, a meeting with legal counsel on topic will be scheduled to handle the issues. Water is most precious commodity in the City and water rights need to be protected now and in the future. Without water, the City does not exist.

Charles O'Donnell quoted a 1970 DGS report stating Columbia Aquifer ranges from 10 ft to 180 ft. and Menoken is 120 ft. to 160 ft.; will go back through DGS reports to verify. Impression is BPW is in both aquifers.

Kathryn McAllister [Project Engineer, GMB]:

- Water Treatment System: Existing system, efficiency, and areas where possible upgrades are recommended.
- Flow diagram shows existing system with well pumps located near the high school. Well pumps to Schley Avenue Water Treatment Plant and it automatically dumps into a ground storage tank which currently aerates the water. It then flows by gravity through concrete channels within the Water Treatment Plant and is treated with lime, fluoride and chlorine. It is then pumped into distribution system and into the water tower.
- Plant capacity for distribution pumps is above 6 mgd so pumps have enough capacity.
- Limitation in existing water treatment plant is with lime and fluoride treatment. At this time during the summer, very close to storage capacity without problems on long weekends.
- Different ways were considered to help operation costs of pumping from well fields to water treatment plant. Currently well pumps run off a matrix where the five pumps rotate the lead position. Quick alternative is to modify the matrix program; most efficient way is to run the three smaller pumps on lead position at all times with higher flow pumps coming on line with high flow demands. This would save electrical costs until flow demands increase and pumps run more often.
- Energy is put into system at well pumps and lost in ground storage tank because flow is by gravity. Long-term alternative considered looked at energy put through well pumps, modifying the chemical feed system so treatment maintains pressure as it goes into distribution system. Several distribution pumps would then be eliminated.
- First alternative has all well pumps remaining on line, treatment is relocated to a new building at well field to disinfect before pumping directly into distribution system. Two largest distribution pumps at Schley Avenue WTP would remain on line and be considered booster pumps coming on when pressure drops below a certain level.
- This alternative has several considerations: (1) proximity to school with the corn gaseous infection and (2) the electric and everything would need to be relocated.
- Positive result would be freeing up Schley Avenue property which is underutilized especially the larger building.
- Discussion followed asking if the pinch point is the chemical injection process at Schley the business case needs to be reviewed to resolve the pinch point at Schley versus a new building. Calculate all costs to see how effective it is.
- Alternative is not most cost effective or the recommended alternative.
- Second alternative is recommended as shown in flow diagram. Minimize pumping by in-line treatment. Recommend relocating because lime and fluoride treatments need to be upgraded and done in a smaller building on Schley site. Treatment would be modified so all four parameters [aeration; lime; fluoride; and disinfection] are part of in-line treatment in a separate building at Schley. Again, two larger distribution pumps would stay on line to act as booster pumps. Most cost effective alternative recommended at this time.
- Another alternative is not most cost effective but is most efficient. Very similar to second except well pumps would be replaced with more efficient pumps. Pumps are 30 plus years old; two have higher flows and three have lower flows. Replace with three new pumps; two would be duty with one standby to pump directly through treatment and into tower. Booster pumps would be eliminated.
- Impact and fees developed include distribution system for each zone area in addition to water treatment plant costs. Alternative was to keep existing wells on line but redo chemical treatment and do in-line treatment as part of costs.
- Costs in several zones, has impact fee sometimes below existing impact fee. At that time, recommendation is to maintain minimum $2,600 impact fee or whatever fee is at that time. Zones 1, 4 and 7 would have existing $2,600 impact fee. Area 5 has higher impact fees because of Hoornkill; Board could consider grants and some type of supplement. Costs do not include sidewalk rehab.
- Recommendations include: Water treatment plant be switched to in-line treatment and move into a smaller building to relieve Schley Avenue facility. No well or storage tank is recommended at this time. High priority is to obtain future CPCN areas. Maintain routine hydrant-testing program; should be done at different times of the day and at different peak flows and at different times of the year. Low priority at this time is small upgrades with red hydrants in existing system. In future, install infrastructure based on model.

QUESTION:

Mr. Richmann: Page 28 says Pump 1 has had minor level of nitrates recorded in raw water samples and therefore always operates in the lag position to promote blending with the raw water from the lead pump. Please explain.
Kathryn McAllister: Most likely coming from an agricultural area. It is a very low level of nitrates. Well pumps operate on a matrix and Well 1 is never in the lead position. Whenever Well 1 is operated, it is always blended and at that point the nitrates decrease. Pump is not causing problem; it is the well water.
Amanda Pollack: Well 1 was measuring nitrates of 8.6 mg/liter; contaminant level is 10. Other wells measure 5.5; 5.5; 5.3 and 5.4 so Well 1 is higher but still within proper parameters but should be watched. Well 1 is closest to farm on New Road.
President Stabley: How often does Well 1 run?
Amanda Pollack: My understanding is it runs regularly in lag position.
President Stabley: What if we shut Well 1 down?
Kathryn McAllister: May be shut down now but not when demand increases. Well was considered in capacity for area.

Charles O'Donnell: When EPA establishes maximum contaminant level, there is a safety factor. Through 1900's, it was found long-term exposure to much higher levels of nitrates over time creates a disease called Blue Baby Syndrome. Nitrate level was put in report because it is a concern but nitrate levels do not warrant building a new well immediately.

DISCUSSION:
Ten years of data on nitrate levels will be reviewed to see if and how much nitrate levels are increasing. Farming operation being actual cause of nitrates. If drawing from a deeper aquifer than Columbia, there should not be a problem. Check what high school is using on field. Three new high efficiency pumps could be replaced in phases but need to ensure there is no conflict with draw down. Model is strictly based on water tower levels which would always be maintained. Option of capping well or treating water. Due to age of wells, there is approximately a $15,000 a year cost to keep them up and running. Even though always operation costs, new wells would save money. Zone 1 is questionable because conditions still not worked through. Zone 7 is also not developed as yet. Report numbers compare with City's Comprehensive Plan. Giving presentation to City Planning Commission in order to receive their input.

ACTION:
President Stabley will review presentation and get answers to questions on Charter and aquifers. There is competition on water which is a critical factor. Mr. Mecham and Mr. Richmann were requested to present legal questions to the attorney and obtain responses as soon as possible. Mr. Gordon has given a copy of report to a member of City Council.

President Stabley asked for a 10-minute recess at 8:42 p.m.
After recess, meeting was shortened because snowing and public left.

11. Open forum/general discussion on the steps involved in an Asset Management Program for the utility infrastructure (Staff)
INFORMATION/ACTION:
Tabled.

12. It is recommended that the Board of Public Works authorize the application of a Wastewater Planning Matching Grant from the Department of Natural Resources and states same as a resolution of the Board of Directors. (Gayhardt)
INFORMATION:
Mr. Gayhardt said URS has been given this project and told to return by January 29, 2011 and to meet all requirements. Grant money will be used to put another holding tank at sewer plant to hold nutrients. Matching grant is $50,000 a year.
ACTION:
Mr. Gayhardt motioned to accept application with hopes of receiving, Mr. Alfred seconded, and motion carried. President Stabley asked for questions; no questions. All Board Members agreed to accept.

13. MEETINGS ATTENDED BY BOARD MEMBERS OR STAFF.
Time prohibited discussion.

14. BOARD OR STAFF REQUESTS FOR AGENDA ITEM(S).
Item needed to review aquifer report and discuss.

15. Call to the Public.
All attendees left.

16. Call to the Press
Henry Evans will work with BPW staff to obtain press release for Board Elections.

17. Executive Session.
Mr. Gayhardt motioned to move to Executive Session, Mr. Alfred seconded, and motion carried.
Board went into Executive Session at 8:52 p.m.

Recorded by: Rosemary Shannon

18. Return to open session.
19. Approve the Executive Session Minutes of December 1, 2010.
20. Open forum/general discussion and/or action on any item from the Executive Session.
21. Adjournment.